A M E N D M E N T

IN THE CLAIMS:

Please amend claims 1, 5, 9, 13, and 19-24 to read as follows:

1.   (Currently Amended) A scheduler for a network processor, comprising:

one or more scheduling queues, each adapted to define a respective sequence in which flows are to be serviced; and

~~one or more~~ a plurality of empty indicators, each empty indicator being associated with a respective scheduling queue to indicate whether the respective scheduling queue is empty.

2.   (Original)   The scheduler of claim 1, wherein each empty indicator is a bit in a register.

3.   (Original)   The scheduler of claim 1, wherein the one or more scheduling queues include 64 scheduling queues and the one or more empty indicators include 64 empty indicators.

4.   (Original)   The scheduler of claim 1, wherein each scheduling queue includes 512 slots to which flows are attachable.

5.   (Currently Amended) A method of dequeuing a flow from a scheduling queue, comprising:

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examining an empty indicator <u>of a plurality</u> <u>of empty indicators</u> associated with the scheduling queue;

refraining from searching the scheduling queue if the empty indicator indicates that the scheduling queue is empty;

searching the scheduling queue if the empty indicator indicates that the scheduling queue is not empty; and

detaching from the scheduling queue a winning flow found in the searching step.

6.   (Original)   The method of claim 5, further comprising, prior to the examining step, selecting the scheduling queue from among a plurality of scheduling queues in a round robin process.

7.   (Original)   The method of claim 5, wherein the searching step includes searching a plurality of subqueues included in the scheduling queue, the subqueues having mutually different respective ranges and resolutions.

8.   (Original)   The method of claim 5, wherein the examining step includes checking a bit in a register.

9.   (Currently Amended) A method of enqueuing a flow to a scheduling queue, comprising:
attaching a flow to the scheduling queue; and

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placing an empty indicator <u>of a plurality of</u>
<u>empty indicators</u> associated with the scheduling queue
in a condition to indicate that the scheduling queue
is not empty.

10.   (Original)   The method of claim 9,
wherein the attaching step includes assigning the flow
to a slot in the scheduling queue according to the
formula CP + ((WF x FS)/SF), where:
        CP is a pointer that indicates a current
position in the scheduling queue;
        WF is a weighting factor associated with the
flow;
        FS is a size of a data frame associated with
the flow; and
        SF is a scaling factor.

11.   (Original)   The method of claim 9,
wherein the placing step includes setting a bit in a
register.

12.   (Original)   The method of claim 9,
wherein the placing step includes resetting a bit in a
register.

13.   (Currently Amended) A method of
dequeuing a flow from a scheduling queue, comprising:
        examining an empty indicator <u>of a plurality</u>
<u>of empty indicators</u> associated with the scheduling
queue;

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refraining from searching the scheduling
queue if the empty indicator indicates that the
scheduling queue is empty;

searching the scheduling queue if the empty
indicator indicates that the scheduling queue is not
empty;

if a winning flow is found in the searching
step, detaching the winning flow from the scheduling
queue; and

if no flow is found in the searching step,
placing the empty indicator in a condition to indicate
that the scheduling queue is empty.

14.   (Original)   The method of claim 13,
further comprising, prior to the examining step,
selecting the scheduling queue from among a plurality
of scheduling queues in a round robin process.

15.   (Original)   The method of claim 13,
wherein the searching step includes searching a
plurality of subqueues included in the scheduling
queue, the subqueues having mutually different
respective ranges and resolutions.

16.   (Original)   The method of claim 13,
wherein the examining step includes checking a bit in
a register.

17.   (Original)   The method of claim 13,
wherein, if the detaching step is performed, a further
search of the scheduling queue is performed to
determine whether any flows are enqueued in the

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scheduling queue other than the flow detached in the
detaching step.

18.   (Original)   The method of claim 17,
wherein the empty indicator is placed in a condition
to indicate that the scheduling queue is empty if the
further search of the scheduling queue determines that
there are no flows in the scheduling queue other than
the flow detached in the detaching step.

19.   (Currently Amended) A scheduler for a
network processor, comprising:
        one or more scheduling queues, each
adapted to define a respective sequence in which flows
are to be serviced; and
        one or more a plurality of empty
indicators, each empty indicator of the plurality of
empty indicators being associated with a respective
scheduling queue to indicate whether the respective
scheduling queue is empty;
        wherein the scheduler is adapted to:
        examine an empty indicator
associated with a first scheduling queue;
        refrain from searching the first
scheduling queue if the empty indicator indicates that
the first scheduling queue is empty;
        search the first scheduling queue
if the empty indicator indicates that the first
scheduling queue is not empty; and
        detach from the first scheduling
queue a winning flow found in the search of the first
scheduling queue.

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20. (Currently Amended) A scheduler for a network processor, comprising:

one or more scheduling queues, each adapted to define a respective sequence in which flows are to be serviced; and

~~one or more~~ a plurality of empty indicators, each empty indicator of the plurality of empty indicators being associated with a respective scheduling queue to indicate whether the respective scheduling queue is empty;

wherein the scheduler is adapted to:

attach a flow to a first scheduling queue; and

place an empty indicator associated with the first scheduling queue in a condition to indicate that the first scheduling queue is not empty.

21. (Currently Amended) A scheduler for a network processor, comprising:

one or more scheduling queues, each adapted to define a respective sequence in which flows are to be serviced; and

~~one or more~~ a plurality of empty indicators, each empty indicator of the plurality of empty indicators being associated with a respective scheduling queue to indicate whether the respective scheduling queue is empty;

wherein the scheduler is adapted to:

examine an empty indicator associated with a first scheduling queue;

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refrain from searching the first
scheduling queue if the empty indicator indicates that
the first scheduling queue is empty;

     search the first scheduling queue
if the empty indicator indicates that the first
scheduling queue is not empty;

     if a winning flow is found by the
search of the first scheduling queue, detach the
winning flow from the first scheduling queue; and

     if no flow is found by the search
of the first scheduling queue, place the empty
indicator in a condition to indicate that the first
scheduling queue is empty.

     22. (Currently Amended) A computer program
product adapted to dequeue a flow from a scheduling
queue, the computer program product comprising:

     a medium readable by a computer, the
computer readable medium having computer program code
adapted to:

     examine an empty indicator of a
plurality of empty indicators associated with the
scheduling queue;

     refrain from searching the
scheduling queue if the empty indicator indicates that
the scheduling queue is empty;

     search the scheduling queue if the
empty indicator indicates that the scheduling queue is
not empty; and

     detach from the scheduling queue a
winning flow found in the search of the scheduling
queue.

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23.   (Currently Amended) A computer program product adapted to enqueue a flow to a scheduling queue, the computer program product comprising:

a medium readable by a computer, the computer readable medium having computer program code adapted to:

attach a flow to the scheduling queue; and

place an empty indicator of a plurality of empty indicators associated with the scheduling queue in a condition to indicate that the scheduling queue is not empty.

24.   (Currently Amended) A computer program product adapted to dequeue a flow from a scheduling queue, the computer program product comprising:

a medium readable by a computer, the computer readable medium having computer program code adapted to:

examine an empty indicator of a plurality of empty indicators associated with the scheduling queue;

refrain from searching the scheduling queue if the empty indicator indicates that the scheduling queue is empty;

search the scheduling queue if the empty indicator indicates that the scheduling queue is not empty;

if a winning flow is found by the search of the scheduling queue, detach the winning flow from the scheduling queue; and

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if no flow is found by the search
of the scheduling queue, place the empty indicator in
a condition to indicate that the scheduling queue is
empty.

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